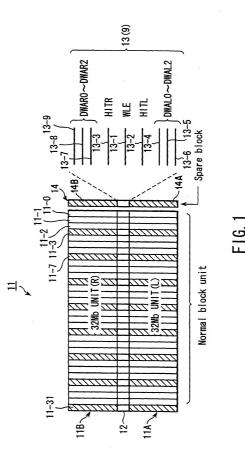
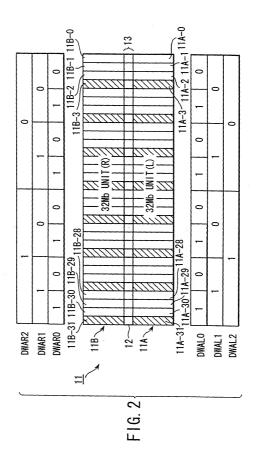
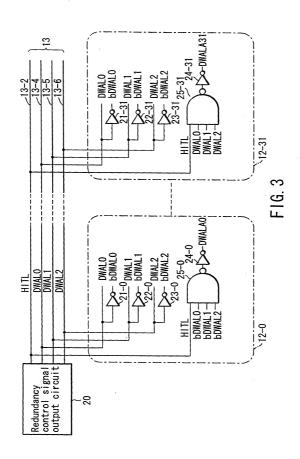
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 1 of 48



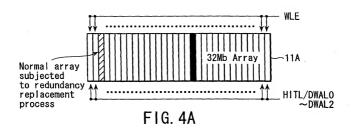
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 2 of 48



Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 3 of 48



Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 4 of 48



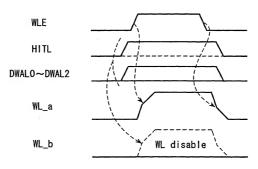
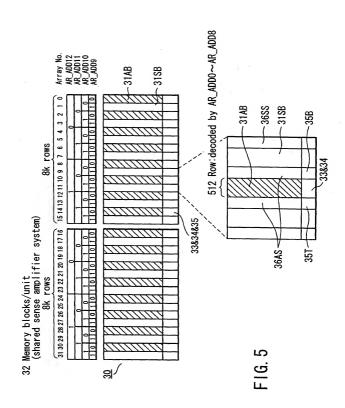
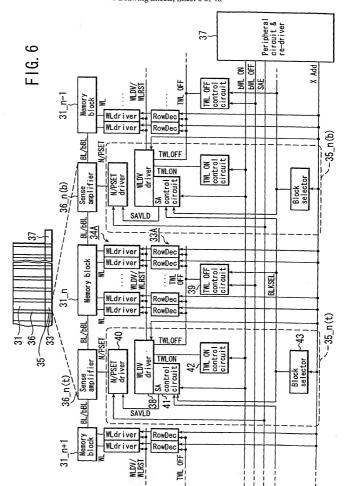


FIG. 4B

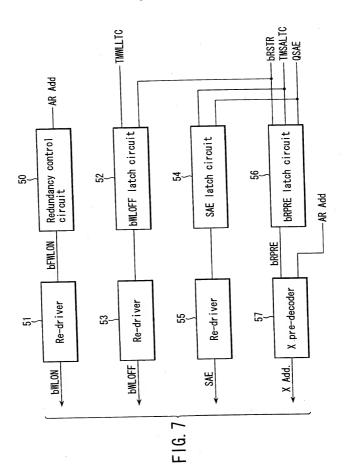
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 5 of 48



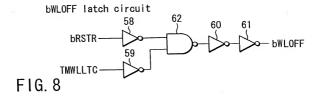
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 6 of 48



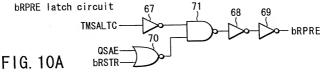
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 7 of 48



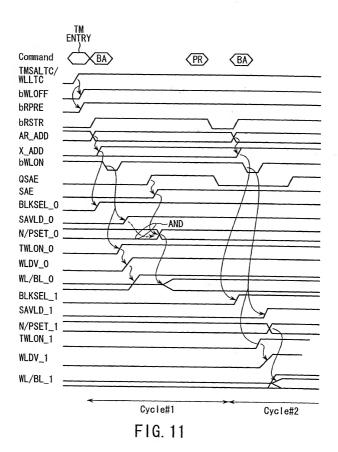
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 8 of 48



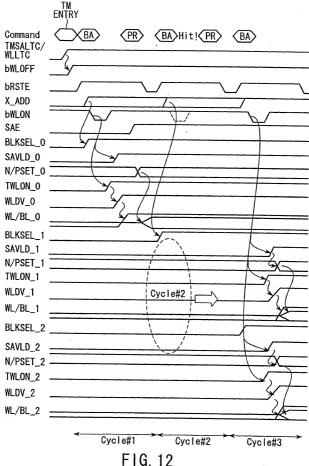
SAE latch circuit



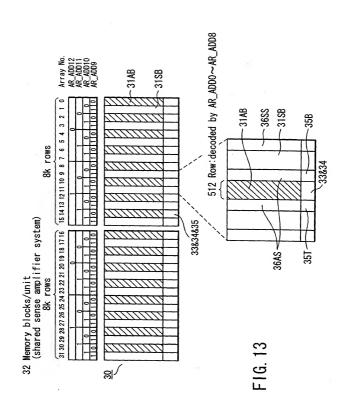
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 9 of 48



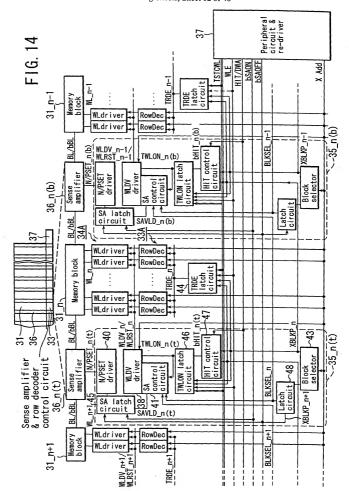
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 10 of 48



Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 11 of 48



Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 12 of 48



Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 13 of 48

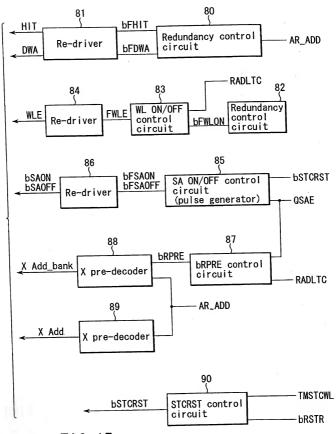
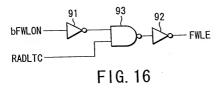
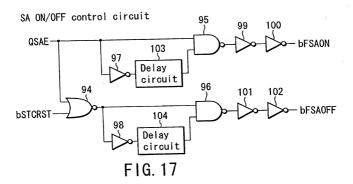


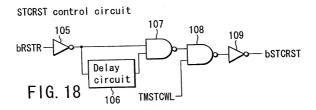
FIG. 15

Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 14 of 48

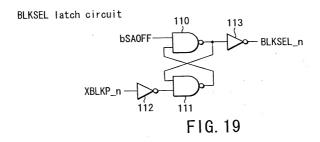
## WL ON/OFF control circuit

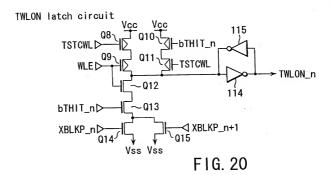






Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 15 of 48





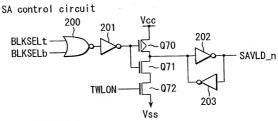
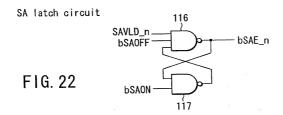
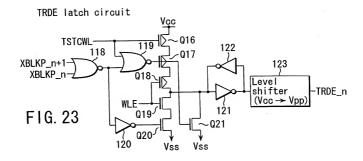
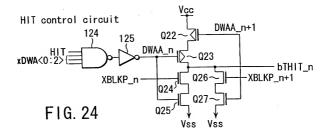


FIG. 21

Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 16 of 48







Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 17 of 48

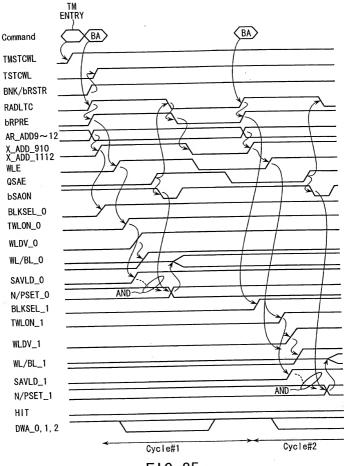


FIG. 25

Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 18 of 48

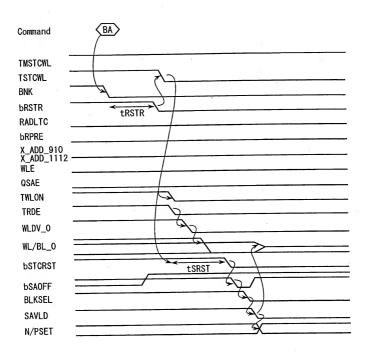
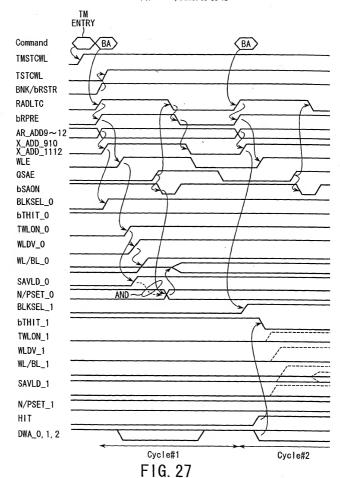


FIG. 26

Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 19 of 48



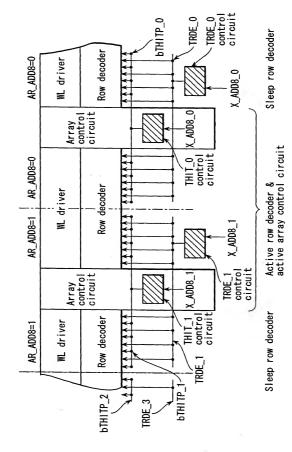
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 20 of 48

lock & Nifier	Sense ampli-	fier	control circuit
Sleep memory block & sleep sense amplifier	Memory block		WL driver & row decoder
& er	Sense	Tier in	control
Active memory block & active sense amplifier	Memory block		WL driver & control row decoder circuit
Actact	Sense	#ier	control circuit
Sleep memory block & sleep sense amplifier	Memory block		WL driver & row decoder
Sleep I	Sense	fier	control

Sleep row decoder & sleep array control circuit Active row decoder & active array control circuit Sleep row decoder & sleep array control circuit

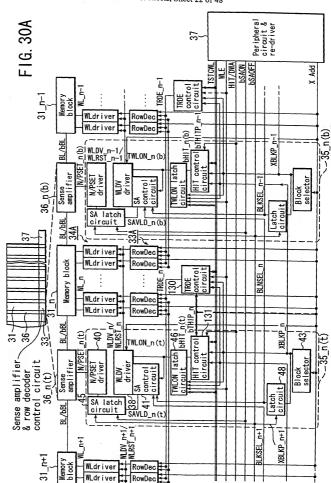
F1G. 28

Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 21 of 48



F1G. 29

Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 22 of 48



Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 23 of 48

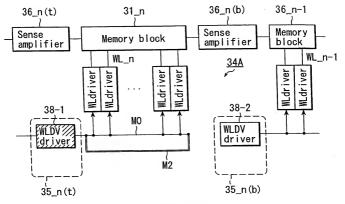


FIG. 30B

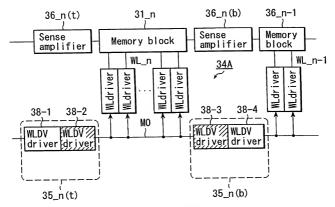
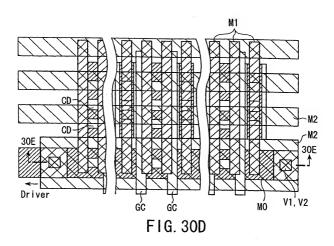
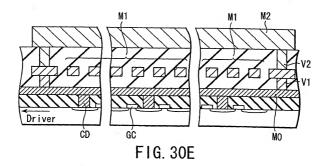


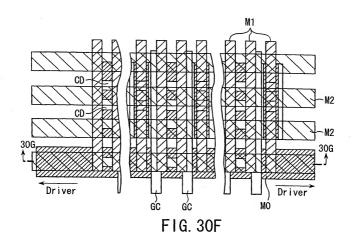
FIG. 30C

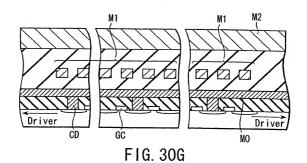
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 24 of 48



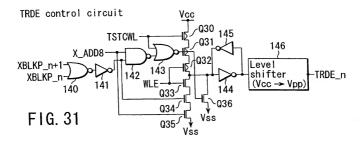


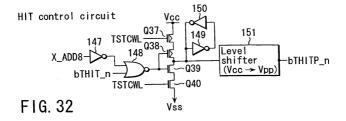
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 25 of 48

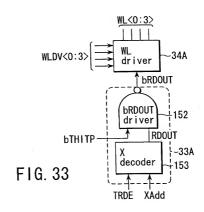




Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets: Sheet 26 of 48







Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 27 of 48

Sleep memory block & sleep sense amplifier Active memory block & active sense amplifier Sleep memory block & sleep sense amplifier

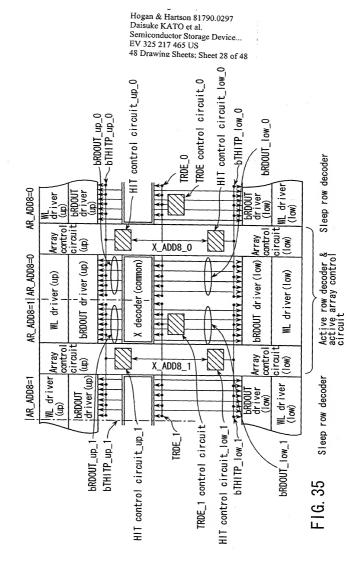
Sense ampli- fier (up)	Memory block (up)	Sense ampli- fier (up)	Memory block (up)	Sense ampli- fier (up)	Memory block (up)	Sense ampli- fier (up)
Array control circuit	WL driver(up)	Array∷ control circuit	WL driver(up)		WL driver(up)	Array control
(up) Array control	Row decoder (common)	(up) :: Array :: control	Row decoder (common)	circuit (up) Array control	Row decoder (common)	circuit (up) Array
circuit (low)	WL driver (low)	circuit (low):	WL driver	circuit (low)	WL driver (low)	control circuit (low)
Sense ampli- fier (low)	Memory block (low)	Sense ampli- fier (low)	Memory block (low)	Sense ampli- fier (low)	Memory block (low)	Sense ampli- fier (low)

Sleep row decoder & sleep array control circuit

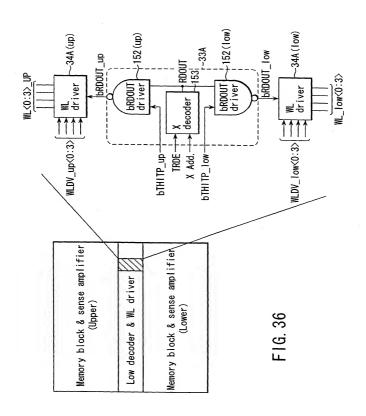
Active row decoder & active array control circuit

Sleep row decoder & sleep array control circuit

FIG. 34



Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 29 of 48



Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 30 of 48

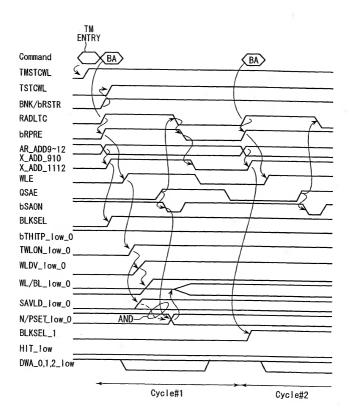


FIG. 37

Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 31 of 48

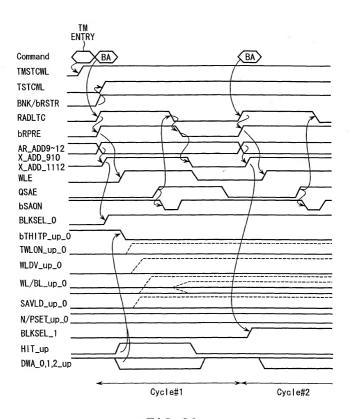
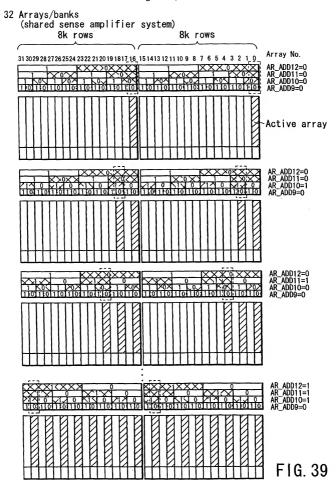


FIG. 38

Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 32 of 48



Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 33 of 48

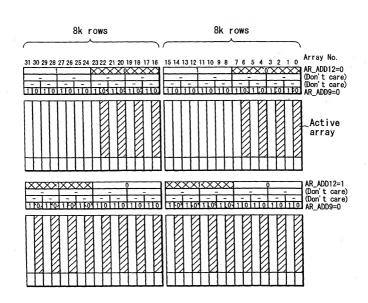
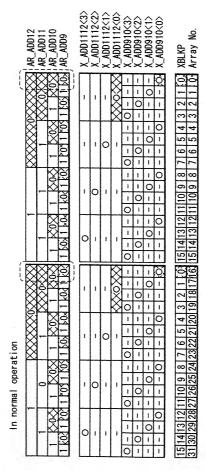


FIG. 40

Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 34 of 48



F16. 41A

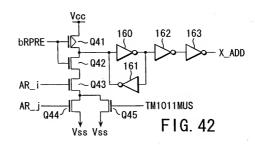
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 35 of 48

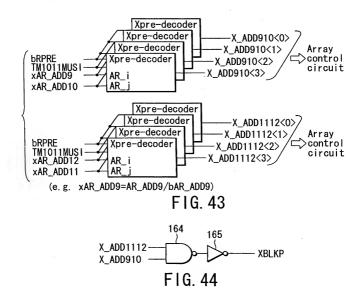
(Don't care) X\_ADD1112<2> X\_ADD1112<1> X\_ADD1112<3 ADD910<3> X\_ADD910<2> X\_ADD910<1> ADD910<0> XBLKP Array No. ı 0 1 15114113112111110 9 | 8 | 7 26 4 5 44 3 22 ı 0 ı ı XoX 0 ı 6 o ı ı ı O ı ı ı O 8 ı ١ 0 15 14 13 12 11 10 9 ı ı ı 0 ı ī 0 ı  $\overline{\circ}$ ı ī С ı ı 0 ı ı 0 ı ı o ı ı ı ı 0 ı ı ı Ò. 30|29|28|27|26|25|24|23|22|21|20|191|8|17|16 C ı (OXX ı ı ŏ 5|14|13|12|11|10|9|8|7|63|5|643|3|23 ı ı ı Õ XX0XX C ı ı 0 ı 0 ı C 10 ı ı O O ı ı ı  $\overline{\circ}$ ı 1 O О ō ı ι O

At time of TM1011MUS! entry

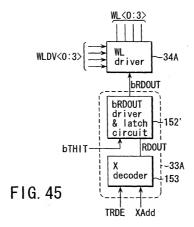
F1G. 41B

Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 36 of 48

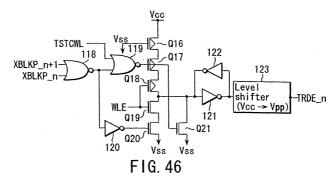




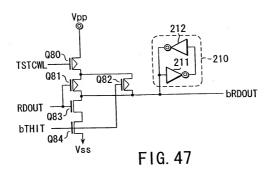
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 37 of 48

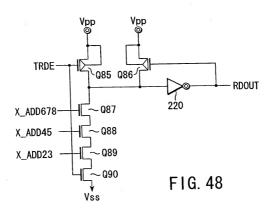


TRDE control circuit

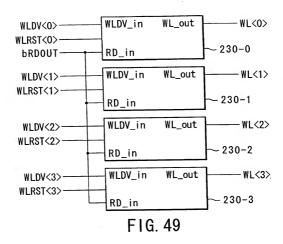


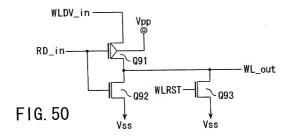
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 38 of 48



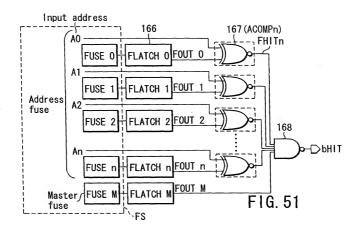


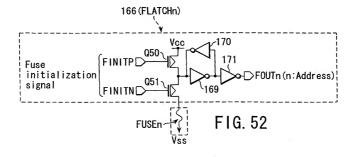
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 39 of 48

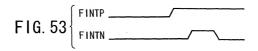




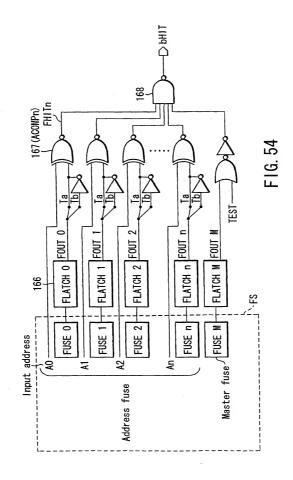
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 40 of 48



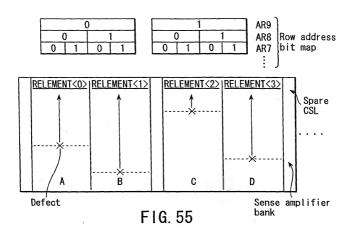


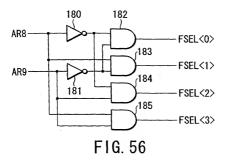


Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 41 of 48

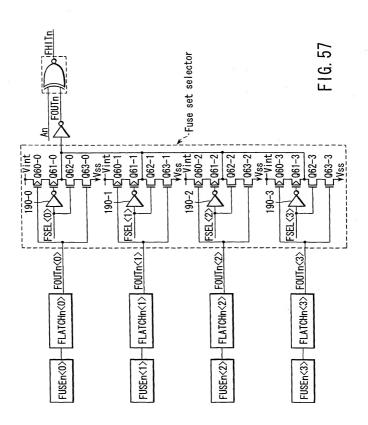


Hogan & Hartson 81790.0297
Daisuke KATO et al.
Semiconductor Storage Device...
EV 325 217 465 US
48 Drawing Sheets; Sheet 42 of 48

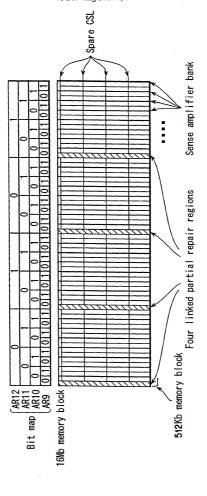




Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 43 of 48

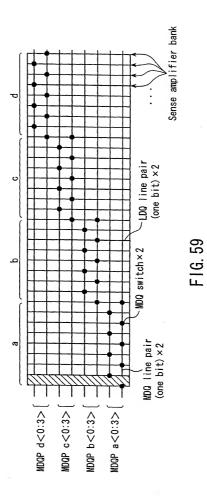


Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 44 of 48

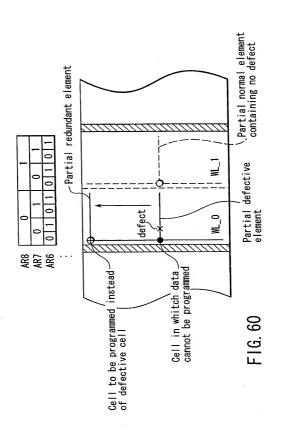


F1G. 58

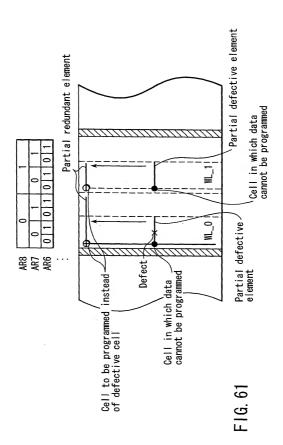
Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 45 of 48



Hogan & Hartson 81790.0297 Daisuke KATO et al. Semiconductor Storage Device... EV 325 217 465 US 48 Drawing Sheets; Sheet 46 of 48



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